Chesterfield Fire and EMS

Fire and Life Safety Division

Clean Agent Fire Extinguishing Systems

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CLEAN AGENT FIRE EXTINGUISHING SYSTEMS
NFPA 2001

Project Name : _____
Project Address : _____
Building Permit # : _____ Date : _____
Code Edition: _____

All supporting documentation showing items listed below are required for review. The checklist is based on the 1996 edition.

General (All submissions shall include the following):

☐ A minimum of **four** copies of shop drawings, calculations, and submittal data shall be provided with a permit application permitting evaluation of the system **PRIOR TO** installation. The permit application shall clearly designate the system as being **required** for compliance with Virginia Uniform Statewide Building Code, or installed as an **elective** system at the discretion of the owner.

☐ Name and address of project or tenant where system will be installed; include associated building permit number with project. (3-1.2.2)

☐ Name, address, and telephone/fax numbers for the designer of fire suppression / detection system. (3-1.2.2)

☐ Plans are to be drawn to a uniform size and to a recognized scale.

☐ Point of compass and symbol legend. (3-1.2.2)

☐ Location and construction of the protected enclosure's walls and partitions. (3-1.2.2)

☐ Enclosure cross section, full height or schematic diagram, including location and construction of building floor/ceiling assemblies above and below, raised access floor and suspended ceiling. (3-1.2.2)

- ☐ Type of clean agent being used by brand name and chemical nomenclature. (3-1.2.2)
- ☐ Design extinguishing or inerting concentration. (3-1.2.2)
- ☐ Description of occupancies and hazards being protected, designating whether or not the enclosure is normally occupied. (3-1.2.2)
- ☐ Description of the exposures and occupancies adjacent to the enclosure. (3-1.2.2)
- ☐ Description of the agent storage containers used including internal volume, storage pressure, and nominal capacity expressed in units of agent mass, or volume at standard conditions of temperature and pressure. (3-1.2.2)
- ☐ Description of nozzle(s) used including size, orifice port configuration, and equivalent orifice area. (3-1.2.2)
- ☐ Description of piping and fittings used including material specifications, grade, and pressure rating. (3-1.2.2)
- ☐ Description of wire or cable used including classification gauge (AWG), shielding, number of strands in conductor, conductor material, and color-coding schedule. Segregation requirements of various system conductors shall be clearly indicated. The required method of making wire terminations shall be detailed. (3-1.2.2)
- ☐ Description of the method of detector mounting. (3-1.2.2)
- ☐ Equipment schedule or bill of materials for each piece of equipment or device showing device name, manufacturer, model or part number, quantity, and description. (3-1.2.2)
- ☐ Plan view of protected area showing enclosure partitions (full and partial height); agent distribution system including agent storage containers, piping, and nozzles; type of pipe hangers and rigid pipe supports; detection, alarm, and control system including all devices and schematic of wiring interconnection between them; end-of-line device locations; location of controlled devices such as dampers and shutters; location of instructional signage. (3-1.2.2)
- ☐ Isometric view of agent distribution system showing the length and diameter of each pipe segment; node reference numbers relating to the flow calculations; fittings including reducers and strainers; orientation of tees, nozzles including size, orifice port configuration, flow rate and equivalent orifice area. (3-1.2.2)
- ☐ Scale drawing showing the layout of the annunciator panel graphics. (3-1.2.2)
- ☐ Details of each unique rigid pipe support configuration showing method of securement to the pipe and to the building structure. (3-1.2.2)

- ☐ Details of method of container securement showing method of securement to the container and to the building structure. (3-1.2.2)

- ☐ Complete step-by-step description of the system sequence of operations, including functioning of abort and maintenance switches, delay timers, and emergency power shutdown. (3-1.2.2)

- ☐ Point-to-point wiring schematic diagrams (plan view) and system riser diagram showing all circuit connections to the system control panel and graphic annunciator panel. (Refer to 1993 NFPA 72:3-9.2.1). (3-1.2.2)

- ☐ Complete calculations to determine enclosure volume, quantity of clean agent, and capacity of backup batteries. (3-1.2.2)

- ☐ Method used to determine number and location of audible and visual indicating devices, and number and location of detectors. (3-1.2.2)

- ☐ Details of any special features, i.e.: interconnection of release panel with building fire alarm system, interfacing with HVAC controls, interfacing security/special locking devices (Refer to1993 NFPA 72:3-9.2.1). (3-1.2.2)

- ☐ Flow calculations along with the working plans shall be submitted for approval. The version of the flow calculation program shall be identified on the computer calculation printout. (3-1.2.5.1)

- ☐ **Where field conditions necessitate any change from approved plans, the change shall be submitted for approval prior to installation. (3-1.2.5.2)**

- ☐ System flow calculations shall be performed using a calculation method listed or approved by the authority having jurisdiction for the agent. The system design shall be within the manufacturer's listed limitations. (3-2.1)

- ☐ Valves and fittings shall be rated for equivalent length in terms of pipe or tubing sizes with which they will be used. The equivalent length of the container valves shall be listed and shall include siphon tube, valve, discharge head, and flexible connector. (3-2.2)

- ☐ The piping lengths, nozzle, and fitting orientation shall be in accordance with the manufacturer's listed limitations to ensure proper system performance. (3-2.3)

☐ Manufacturers data sheets for the following: (BOCA Section 903.2.2)

- ☐ Agent Cylinder and Valve Assemblies
- ☐ Agent Cylinder Data
- ☐ Agent Valve Outlet Adapters
- ☐ Agent Discharge Nozzles
- ☐ Agent Release Control Heads
- ☐ Agent System Release Control Panels
- ☐ Suppression System Abort Devices
- ☐ Agent Manual Release Stations
- ☐ Initiating Devices
- ☐ Notification Appliances
- ☐ Conductor Wire, Relays, Interface Modules
- ☐ Other

Where multiple contractors are involved in the system design/installation, plan approval requires concurrent submittals and review of the fire suppression and detection systems. Refer to the Fire Alarm Checklist for additional information and requirements regarding the associated detection system.